1898.

ANNUAL REPORT

OF THE

Medical Officer of Health,

FOR THE

BOROUGH OF MAIDSTONE.

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1899.

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REPORT OF THE MEDICAL OFFICER OF HEALTH,

FOR THE YEAR 1898.

TO THE URBAN DISTRICT COUNCIL.

Mr. Mayor and Gentlemen,

On the assumption that the population has grown since 1891 at a rate equal to what the census of that year shows to have been the rate of increase during the decade of 1881-91, the population at the middle of 1898 must have been as follows:—

East Maidstone	17,415
West Maidstone	16,694
Whole Borough	34,109

There are however reasons, and strong ones too, to doubt the correctness of this assumed rate of increase; eight years have elapsed since the enumeration, and almost for certain we may conclude the foregoing figures are in excess, perhaps much in excess of the truth. There are however no trustworthy means whereby they can be accurately checked, consequently, being without alternative, I must use these doubtful figures as the only available basis for the calculations relating to the vital statistics which follow.

From out of this population, there were registered :—

Of Births	714
„ Deaths	446
„ Persons married	480

So that the rates per thousand per annum were :—

Of Births	20·93
„ Deaths	13·07
„ Marriages	14·07

BIRTHS.—In East Maidstone these numbered 394 which equals a rate of 22·62 per thousand ; in West Maidstone 320 which equals a rate of 19·16 per thousand ; 3·81 % of those in East, and 3·75 % of those in West were illegitimate, against an average for Kent of 3·9, or for all England Wales of 4·2.

Last year's (1897) birth rate, the lowest I had till then recorded was 22·6 ; this year's record is still much lower, 20·93. The average of the rates for 10 years 1870-79 was 32·5 ; for the years 1879-88, 31·64 ; and for the last 10 years 1889-98, which are given in detail in the following table, it amounts to 24·99 per thousand per annum, viz. :—

BIRTH RATES.

Year.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Whole Year.
1889	29·64	28·18	29·64	25·86	28·33
1890	26·51	23·61	24·70	23·61	24·59
1891	30·91	26·32	24·83	26·07	27·03
1892	29·68	28·20	26·84	24·50	27·31
1893	24·67	26·99	21·98	22·96	24·15
1894	26·03	25·43	25·79	27·12	26·11
1895	26·20	27·16	26·55	19·82	24·93
1896	23·32	25·02	22·59	26·39	23·91
1897	23·16	20·56	24·23	22·45	22·60
1898	22·16	22·28	16·53	22·75	20·93
Average	26·23	25·37	24·37	24·15	24·99

This table affords very strong evidence of the steady but certainly diminishing rate of the increase of our population comparing 1889 with 1898 the falling off amounts to 28 per cent.

DEATHS —In East Maidstone there were 232 deaths, constituting a rate of 13·32 per thousand per annum ; in West Maidstone, 214 equal to 12·82 ; the mean for England and Wales for the same period being 17·6.

After compensation for *Age and Sex Constitution*, our Comparative Mean Death Rate amounts to 14·3, and our Comparative Mortality Figure equals ·817*.

THE AVERAGE AGE AT TIME OF DEATH.

1898.	East.	West.	Whole Borough.
1st Quarter	40·12	36·55	38·40
2nd ,, ...	31·85	39·74	35·75
3rd ,, ...	26·69	22·57	24·82
4th ,, ...	41·06	35·99	38·58
Whole Year	35·69	34·08	34·92
Average for past 20 years.	33·06	33·36	33·14

The mean age at death is thus seen to have been higher than the average, more especially so in East Maidstone, but also for the whole Borough ; five times only during the last 20 years has the mean age at death been so high.

In Table II., in the appendix, other details relating to the subject of age at death are given in full.

In Table III. will be found details respecting the Causes of Death distributed among 10 various classes of disease. On comparison with the averages for the past 20 years, these figures, with insignificant exceptions, are under the average.

Infant Mortality, that is to say deaths per 1,000 of Births under one year, was above the average during three out of the four quarters, as the following table shows :—

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* Got by multiplying by the factor 1·094 ; for an explanation of this correction see my Annual Report for 1893, pages 5—9.

Deaths per 1,000 Births of Children under one year in Maidstone.

Year.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Whole Year.
1870	165	97	263	115	160
1871	258	107	278	117	190
1872	181	116	171	144	153
1873	136	118	246	127	157
1874	182	93	261	119	164
1875	187	106	157	165	154
1876	147	112	141	98	124
1877	211	140	187	84	155
1878	161	176	209	155	175
1879	135	145	122	165	142
Average	176·3	121·0	203·5	128·9	157·4
1880	135	120	229	118	153
1881	120	119	122	64	106
1882	138	110	100	151	125
1883	218	79	122	139	138
1884	189	78	159	125	138
1885	140	75	187	139	133
1886	118	105	191	166	142
1887	80	59	158	114	103
1888	167	136	167	145	154
1880	132	99	173	137	135
Average	143·7	98·0	160·8	129·8	132·7
1890	136	117	93	113	115
1891	140	113	150	157	140
1892	128	87	110	80	102
1893	64	90	222	80	111
1894	167	119	112	116	128
1895	133	62	172	157	129
1896	156	82	129	162	133
1897	143	80	219	100	138
1898	153	89	234	155	152

SMALL POX.—Of this horrid disorder we had a single case in the person of a widower living in a small cottage with a grown-up daughter, as soon as it was notified he was removed to the Public Hospital, his daughter was quarantined, the house was vacated and thoroughly disinfected, with the result that no extension of the disease took place. This must be regarded as undeserved mercy, for, owing to the neglect of vaccination in recent years, our unprotected population has accumulated to an alarming extent. Of course I made it my business at the time of the above-mentioned occurrence to enquire as to the state of affairs locally and generally in regard of vaccination, and I found that there were unvaccinated infants in four out of nine houses adjacent to where the Small Pox case occurred, and in one case only was the offer for vaccination, even at this critical time, accepted; further enquiry showed that for the 12 antecedent months from midsummer 1897 to midsummer 1898 only 53 vaccination (26 in East Maidstone and 27 in West Maidstone) had been performed by the Public Vaccinator in the whole of the Borough, and that gentleman informed me that judging by past experience as public vaccinator, I might safely reckon that his share in this important function was equal to 75 % of the vaccination throughout the whole Borough. If that is still so the following figures will give some idea how much vaccination has been allowed to fall in arrear:—

Births in East Maidstone	425	
,, ,, West Maidstone	340	
,, ,, Whole Borough		765
Less by deaths under one year		138
Number of children requiring vaccination		627
Number of vaccinations by the Public Vaccinator—East Maidstone	26	
,, West Maidstone	27	
Add 25 % for vaccination performed by Private Practitioners (say)	18	
Total vaccinated for whole Borough		71
Remaining unvaccinated		556

We thus arrive at the appaling fact that in a single year 556 children unprotected by vaccination have been added to our population! In face of the obstinate propaganda of misguided anti-vaccinationists, and the disabling legislation of the last Session of Parliament, it is clearly my duty to set before you in unflinching language my solemn conviction that sooner or later this neglect of vaccination is bound to bring down upon the town a fearful penalty.

MEASLES has been practically absent all the year, at all events, not a single fatal case has occurred.

SCARLET FEVER.—Of this disorder there have been 12 notifications, all proved to be of a mild description, and as with Measles we have been equally fortunate in having no death.

DIPHTHERIA on the other hand had been both prevalent and fatal, rather more prevalent, but decidedly less fatal than during 1897. The total number of notifications was 240 against 101 the average, and 211 the highest previous record. The total deaths were 31 against 45 in 1897, 13 of these deaths occurred in East Maidstone and 18 in West. Making for the whole Borough a fatal case rate of 12·9 %.

It will be remembered that Diphtheria has been unduly prevalent in Maidstone (and other places too) since November 1896, it was continuously so throughout the year 1897 when its principle focus was the All Saints' Infant Schools. During 1898 the Barming Heath and St. Michael's Schools have been the chief foci notwithstanding the utmost care that has been bestowed upon the getting at the history and habits of the children in every notified case with the purpose of tracing latent and unnotified cases in their own and other families, and the segregation not merely of the actual sufferers themselves, but also those others upon whom by family or intimate social relationships the slightest suspicion could be fixed of being bearers consciously or not of the disease. There are however reasons why even the most strenuous efforts of this kind are of less avail in staying the spread of this disease in schools than we might expect, the chief are *imperfect and delayed notification.* Unfortunately for our purpose Diphtheria is not characterised by a definite rash like Small Pox, Scarlet Fever, or Measles—or a distinctive cough like Whooping Cough, consequently many cases, especially in the early stages, go unrecognised, and there are not a few mild cases, equally infective as the more severe, that positively present no characteristic symptoms that are recognisable to any ordinary observer, and indeed hardly to be discovered by the medical expert, and there are still others, and for ought I know not a few, where the disease germ is unconsciously carried about by healthy people harmlessly to themselves but injuriously to others, for bacteriology informs us that the bacillus that causes the disease may exist and thrive in the throats of the healthy without producing any sign of Diphtheria.

We have done our best to devise means to meet these serious impediments, with this object we have drawn up and distributed printed notices (see appendix) conveying information on the various points connected with the recognition of the disease, prompting and urging parents to take the earliest possible steps to bring the occurrence of cases to our notice, but such is the perversity of human nature as met with among the lower class, I firmly believe the circulation of such notices has had in some instances, an effect the very opposite to that intended.

Whooping Cough was fatal in 12 instances, five in East and seven in West Maidstone; this is somewhat above the average, the excess however is but trifling, and considering that Whooping Cough has not troubled us since 1894, when it was last in much abundance, the slight excess is less than we had reason to expect

Typhoid.—Under this head the notifications numbered 35 altogether, antecedent to 1897 from past experience our average for each of the four quarters has been 4 0, 4·3, 4·3, and 7·7, making 19·3 for the year. In 1898, there were 14, 5, 8, and 8, that is 35 altogether, with, I am happy to say, only two deaths, one each in East and West. The 14 cases that occurred during the first quarter, in reality belonged to the great epidemic of 1897, and a few of the later cases may also have been belated offshoots; it is really wonderful that they have been so few, and their fewness I think is a testimony to the efficiency with which the disinfecting and other sanitary precautions were carried out. Three of the latter cases, one in the third, and two in the fourth quarters, were certainly importations from London and Hythe near Aylesford, and Yalding, respectively.

DIARRHŒA.—Our average deaths from Diarrhœa has been 13·9. In 1898 there were 18 so registered, and 17 out of this number occurred during the time of year when Summer Diarrhœa prevails, and 14 of these in the course of September just when the remarkable spell of hot weather occurred.

PHTHISIS accounts for 61 deaths, equal to 1·05 per thousand of the population, which is somewhat below our mean (1·257) for the last 20 years from this cause.

The mortality from other classes of disorder is given in extenso in Table III. in the appendix, the substance of which for the convenience of the reader, for ready reference and comparison may be summarised as follows:—

CAUSES OF DEATH.—RATE PER 1,000.

DISEASE.	East Maidstone.		West. Maidstone.		Whole Borough.	
	1898.	average 20 years	1898.	average 20 years	1898.	average 20 years
Seven Zymotic Diseases	1·09	1·943	1·62	1·661	1·35	1·783
Other Zymotics	·63	·390	·78	·305	·70	·345
Phthisis	1·09	1·336	1·02	1·172	1·05	1·257
Other Constitutional Diseases	1·72	1·541	1·14	1·218	1·43	1·386
Disease of the Respiratory Organs	2·35	3·446	2·15	2·506	2·26	2·979
Diseases of the Organs of Circulation	·97	1·370	1·32	1·111	1·14	1·264
Other Local Diseases	2·87	3·329	2·81	2·941	2·84	3·133
Developmental Diseases	1·55	2·092	1·02	1·683	1·29	1·899
Deaths by Violence	·40	·533	·36	·586	·38	·557
Causes ill-defined or not specified	·63	1·008	·60	·801	·61	·908

In all important respects the 1898 figures compare favourably with past averages, and when for comparison they are set against similar records for other places, we show off to advantage, except in the solitary particular of Diphtheria.

LOCALITY.	All causes.	Seven Zymotics.	Small Pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.
EAST MAIDSTONE ..	13 32	1·09	..	..	..	·74	·29	·06	·46
WEST ,, ..	12·82	1·62	..	..	..	1·08	·42	·06	·60
WHOLE BORO'	13 07	1·35	..	..	..	·91	·35	·03	·53
England and Wales	17·6	2·22	·01	·41	·11	·24	·31	·18	·96
33 Great Towns ..	19 0	2·85	·00	·56	·14	·31	·42	·20	1·22
67 Large Towns ..	17·2	2·41	·05	·41	·10	·28	·27	·21	1·09
England and Wales Rural	16·7	1·75	·00	·31	·09	·18	·25	·17	·75

THE NOTIFICATION ACT.—The following is a summary of all the Notifications received during 1898, and also for each of the seven previous years, the space of time during which this Act has been in force in Maidstone :—

DISEASE.	1898.	8 Years Average.
Diphtheria	236	118
Croup	4	3
Scarlet Fever	12	79
Typhoid Fever	35	205
Continued Fever	..	
Erysipelas	29	26
Puerperal Fever	1	4
Small Pox....................	1	4

DIPHTHERIA AND CROUP.

Quarter.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	Average.
1st	12	36	16	28	18	10	44	40	25
2nd	3	27	53	14	8	7	50	24	23
3rd..........	5	15	48	17	16	9	83	80	34
4th	13	28	46	13	30	27	34	96	36
Year	33	106	163	72	72	53	211	240	118

SCARLET FEVER.

Quarter.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	Average.
1st..........	7	..	30	37	19	8	14	2	14
2nd	4	4	90	18	9	14	9	5	19
3rd..........	4	15	79	27	13	11	4	4	20
4th..........	5	25	107	17	29	23	2	1	26
Year	20	44	306	99	70	56	29	12	79

TYPHOID AND CONTINUED FEVER.

Quarter.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	Average.
1st..........	4	2	4	5	5	4	4	14	5
2nd	2	3	10	3	5	3	..	5	4
3rd..........	2	3	11	2	5	3	1280	8	164
4th..........	9	8	9	2	6	6	604	8	83
Year	17	16	34	12	21	16	1888	35	205

ERYSIPELAS.

Quarter.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	Average.
1st..........	8	12	14	13	2	5	2	6	7
2nd	5	6	13	5	2	3	2	4	5
3rd..........	8	7	15	4	7	5	2	7	7
4th..........	4	12	18	9	6	6	7	12	9
Year	25	37	60	31	17	19	13	29	26

PUERPERAL FEVER.

Quarter.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898	Average.
1st..........	1	3	2	3	1	3	3	..	2·0
2nd	..	1	2	2	..	..	..	..	·6
3rd..........	1	..	3	..	..	..	1	..	·6
4th..........	..	..	2	..	1	..	..	1	·4
Year	2	4	9	5	2	3	4	1	4·0

SMALL POX.

Quarter.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	Average.
1st	1	..	1	20	..	..	..	..	3·0
2nd	..	..	..	4	..	..	..	1	·5
3rd..........	..	..	..	4	..	..	..	..	·5
4th..........	..	..	1	1	..	..	..	..	·25
Year	1	..	2	29	..	..	..	1	4·0

TOTAL NOTIFIABLE ZYMOTICS.

Quarter.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	Average.
1st	33	53	66	106	45	30	67	62	56
2nd	14	41	168	46	24	27	61	39	52
3rd..........	20	40	156	54	41	28	1370	99	227
4th..........	31	73	183	42	72	63	647	118	146
Year	98	207	573	248	182	148	2145	318	439

If we except the year 1897 from the last table which year owing to the epidemic of Typhoid was entirely abnormal, it is seen that the total notifiable disease for 1898 was in excess, and reference to the preceding tables show that the excess was wholly due to Diphtheria, but for that single circumstance, notifiable disease would have been at a minimum.

Public Hospital.—The total admissions into this Institution during 1898 was 163, and comprised the following cases :

Modified Small Pox	1
Scarlet Fever......................	8
Diphtheria.........................	154
	163

24 of the 163, equal to a case rate of 14·7 %, ended fatally.

The cost of the maintenance of Staff and Patients is given in the following table:—

1897.	Staff.				Patients.			
Month.	No. of Days.	Cost. £	s.	d.	No. of Days.	Cost. £	s.	d.
January	155	9	2	4·6	176	12	10	0·7
February	140	8	4	8·8	140	8	15	7
March	186	10	18	9·7	147	8	3	3
April	180	10	11	9	28	1	7	5
May	186	10	18	9·7	110	6	12	3·5
June	180	10	11	9	241	13	7	2·2
July	186	10	18	9·7	292	15	17	3·4
August	186	10	18	9·7	357	18	5	4·9
September	180	10	11	9	299	14	14	5·6
October	186	10	18	9·7	399	20	2	6
November	180	10	11	9	325	16	8	4·4
December	186	10	18	9·7	514	24	15	3·3
Total	2131	£125	6	11·6	3028	£150	19	1·5

I am happy to be able to record that a resolution has been passed by the Urban District Council to enlarge the Public Hospital. A scheme and plans have been drawn up that will, when executed, provide greatly needed additional accommodation, not merely to the extent of the proposed enlargement, but such as must make the old accommodation, without counting the new, almost twice as serviceable as it hitherto has been.

At the present time we have two blocks of buildings, each serving for the reception of 10 patients; these two blocks may be occupied by persons suffering from one or, at the most, two kinds of infectious disease; for example, for those stricken with Scarlet Fever in one block, and others with Diphtheria in the other. As a rule two kinds of infectious disorder are not equally rife at one and the same time, and from a sanitary point of view it is often more important to isolate persons suffering from a disease of which there are but few cases, than of another disease of which there are many, for when an infectious disease abounds isolation of individual cases is comparatively useless, because being already widely spread it is almost impossible to spread the net of isolation wide enough to bring the whole of the infection under sanitary control; on the other hand it is of the greatest possible importance to isolate the initial single, or few cases, for, more often than not, an epidemic springs from a single case, so that if only it is possible to get knowledge of, to identify, and to isolate the one original case, before it has a chance of spreading, a potential epidemic is nipped in the bud.

At present, in order to execute this important function, we are compelled to vacate a whole block, in other words the half of our hospital accommodation, for the reception of a single patient. One of the chief objects of the enlargement of the Hospital is the provision of separation wards, which will put an end to this extravagant draft upon our, in this respect, far too limited sanitary resources.

Disinfection Station.—The number of articles disinfected in the course of the year was 2,971, consisting of clothing or articles of furniture. These were removed by the sanitary staff from infected houses at the request of their owners in the municipal vans, treated in the new steam disinfector, in some cases washed, and then returned free of charge to their respective owners.

The new Lyon Disinfector has worked perfectly well, and given every satisfaction.

METEOROLOGY.

The Rainfall for Maidstone for the year 1898 was 16·43 inches, against 18·85 registered at Greenwich; this is far and away the lowest amount I have recorded. For the ten years, 1870-79, the average was 27·39; for the next ten years, 1880-89, 23·79; and the last eight years, 1890-97, 24·88; or for the whole period of 28 years that I have kept a reckoning, 1870-97, 25·39; so that last year's fall compared with the average of the previous 28 years was 35·2 % short, and less than the half, or nearly so, of what it had been in some years (for example 39·51 in 1872). The only decidedly wet month was May, when there fell 3·3 inches, on the other hand January (0·36), July (0·67), and September (0·33) were most remarkable for their rainlessness. The heaviest falls of the year took place during the 19th, 42nd, and 47th weeks in May, October, and November respectively, when 1·04, 1·42, and 1·39 inches were registered; during the course of the year 13 whole weeks were absolutely rainless.

Temperature.—As a whole the year was warmer than the average, to the amount of 2° Fahrenheit, but the excess of temperature was particularly developed during the fourth qnarter, when the thermometer stood 4·3° above the average, during the third quarter it was 2·5°, and during the first 1·8° above, but through the second it was 0·5 of a degree below. There was really no cold weather throughout the year; just at the end of February and through March it was unseasonably cold, but never severely so; and through April, May, and July it was ungenial; but on the other hand, from the middle of August almost without exception to the end of the year, the temperature was much above the normal, and what is most remarkable, during the 36th week (Sept.) the average height of the thermometer was 11½ degrees above the normal.

The Winds.—The departure from the average in excess or deficiency in the direction of the wind in days, as compared with former years, is exhibited in the following table:—

Year.	NW	N	NE	E	SE	S	SW	W
1898	+4	−10½	+1½	+10½	−1½	−2	−14	+12¾

This shows that there was much excess of West and East wind, and some excess of N.W. and N.E., whilst there was great deficiency of S.W. and N., and less likewise of S. and S.E. This distribution of the wind currents is fully in accord with the deficient rainfall.

HUMIDITY.—The shortened rainfall and the direction of the air currents kept the atmosphere unusually dry for eleven months out of the twelve, in other words every month but June was drier and sometimes much drier than usual; the driest month of all was September, when the air contained only 68 % of moisture, that is to say 13 % less than usual; on the whole the amount of humidity was 78·1 %, against an average for 56 years of 82·1 %, equal to 4 % less.

Month.	Mean for 1898.	Mean for 56 years.	Difference for 1898.
January	85	87	− 2
February	79	84	− 5
March	80	81	− 1
April	73	79	− 6
May	77	78	− 1
June	76	74	+ 2
July	72	75	− 3
August	71	77	− 6
September	68	81	−13
October........	83	89	− 6
November	89	91	− 2
December	84	89	− 5
Mean..........	78 1	82·1	− 4·0

SUBSOIL WATER —The mean height of the subsoil water at my Laboratory was 204·66 inches beneath the ground level, the mean for this and the preceding 13 years being 197·12, so that the underground water was 7·54 inches lower than usual; it reached its greatest height, 197·52, during the 21st week, which is 12·07 inches less than the average, and its lowest point, 211·92, which is 6·63 inches lower than the average, during the 41st week, giving a range of movement of only 14·4 inches, against a mean of 19·84, and consequently 5·44 less than the average—so that there was comparative stagnation of the underground water. The principal rise took place during the 12th and 13th weeks, following immediately upon 0·97 of an inch of rain, the line of saturation having been unprecedently low for at least six months previously, repeating the phenomena in a minor degree, so far as the subsoil water level is concerned, that led to the calamity of the Typhoid epidemic.

SUBSOIL WATER LEVELS.

Year.	Average for Year.	Highest.	Lowest.	Range.
1885	201·52	187·92	212·40	24·48
1886	202·81	188·64	211·68	23·04
1887	200·07	186·72	208·56	21·84
1888	198·50	189·84	203·28	13·44
1889	198·18	193·68	204·00	10·32
1890	199·23	192·24	206·52	14·28
1891	196·18	188·28	201·60	13·32
1892	195·76	182·16	204·00	21·84
1893	193·96	181·20	203·76	22·56
1894	193·89	176·88	198·96	22·08
1895	194·06	186·00	201·24	15·24
1896	193·81	179·40	203·88	24·48
1897	194·66	177·96	208·92	30 96
1898	204·66	197·52	211·92	14·40
Mean.	197·12	185·45	205·29	19·84

In inches beneath the surface at the Laboratory.

GENERAL SANITARY CONDITION AND PROGRESS.

From Mr. Bunting, the Borough Surveyor, I learn that the following works of sanitary importance have been carried out during the year:—

"Eighty new houses have been erected. 26 have undergone alterations or have been added to. 24 buildings of the warehouse and public buildings class have been erected. 7 stables and 31 new W.C.'s have been erected. 180 connections have been made with the public sewers.

"The number of sewer connections is almost double that of the highest number in any previous year, excepting 1897.

"Two or three shafts, for the purpose of ventilating the public sewers in different parts of the town, have been fixed.

"A number of defectively constructed and untrapped gullies have been removed, and substituted with properly constructed ones.

"During the year the following sewer extensions have been carried out:—

St. Luke's Road	300ft.,	9in. diameter.
St. Luke's Avenue	450ft.,	9in. ,,
John Street	125ft.,	9in. ,,

"The following sewers have been removed, and entirely renewed:—

Knightrider Street	668ft., 18in. dia. in place of 12in.
West Boro' sewer thro' S.E.R. Goods Yard	290ft., 15in. dia.

Making a total length of 875ft. in extension,
and 958ft. in reconstruction.

"The reconstruction of Gabriel's Hill sewers was commenced during the last week of the year, and will be included in the return for 1899.

"The following new roads have been laid out:—

St. Luke's Road (extension)	300ft.
St. Luke's Avenue (portion of)	450ft.
Total	750ft.

"Experimental bacteria beds have been put down at the sewerage works, capable of dealing with about 30,000 gallons of sewage daily; these have been worked since the latter end of October, and the results at present appear to be satisfactory."

Sanitary Inspection.—The work of the Sanitary Inspector, Mr. Jackling, is set forth in the following list of various "Houses and other Premises dealt with by Notice or otherwise":—

Houses without drains, or re-constructed	476
Drains repaired and cleansed..............................	2050
Old Drains Trapped from Sewer, and ventilated	31
Slop Sink and other Waste Pipes disconnected from Drains ..	92
Trapped Stoneware Gullies provided, in lieu of Defective Brick and Bell Traps	620
New Privies constructed....................................	1
Manure Pits constructed....................................	4
Cesspools cleansed, or filled up	4
Water Closets repaired and cleansed	27
Houses provided with new Water Closets	84
Houses provided with additional Water Closets..............	8
Water Closets provided with Water Supply and Flushing Apparatus	911
Water Closet Basins without flushing rims removed, and new and sufficient Basins substituted	741
Old Pan Closets with Container D Traps removed	57
Soil Pipes removed outside dwellings, and ventilated	57
Soil Pipes ventilated	21
Construct or Repair Urinals	6
Remove Water in Cellars	3
Houses provided with Ash-pits or Dust-bins................	488
Houses provided with shooting, or repaired	48
Houses cleansed and lime-washed	13
House Roofs repaired	81
Back Yards of Dwelling Houses provided with new Concrete or repaired...	121
House Refuse removed on complaint	21
Houses supplied with Company's Water....................	109
Overcrowding	15
Remove Manure	12
Remove Pigeons, Poultry, and Animals	38
Remove Pigs..	2
Miscellaneous, not under above heads	193
New Glazed Stoneware Pipe Drainage laid (18,427 feet)......	
New Cast Iron Pipe Drainage laid ("19,814") 1,387 feet	
Total.................	6334

An examination of these returns shows that grand strides have been made in the course of the year, among other ways, in the removal of obsolete water closets, the furnishing of closets with proper flushing apparatus, and the provision of proper ashpits. This activity is well exhibited by a comparison with the average for similar work executed in preceding years.

A comparison of works executed in 1898 with the average for similar works done during the preceding 8 years.

WORKS EXECUTED.	Average of 8 years 1890-97.	1898.
Removal of obsolete Water Closet apparatus..	24	741
Furnishing with proper flushing apparatus ..	142	911
Provision of proper Ash-pits	194	488
Total for year............	361	2140

PUBLIC WATER SUPPLY.—Throughout the year under review, the whole of the Borough, with the exception of Barming Heath and a few houses in the neighbourhood of the Asylum, has derived its Public Water Supply from sources other than Farleigh. With their present arrangements the Maidstone Water Company are unable to deliver at Barming, Water coming from their Chalk Springs at Aylesford, so that Barming Heath Asylum and a few houses in the neighbourhood of the Asylum, have had all along, and continue to have Ewell Water. All other Waters from Farleigh sources, including of course those upon which suspicion chiefly fell at the time of the Epidemic, have been entirely cut out of the Company's supply, so that the drinking water delivered in Maidstone by the Water Company during 1898, was got from the four sources as shewn on page 20.

If I say an immense amount of labour has been expended upon the analyses of these waters the statement is quite true, although it is something short of the whole truth; it would be more correct to say the labour has been invested, and not expended.

Source of the Water.	Derived from	The Property of
No. 1. Chalk at Aylesford.	Spring at Cossington..	Maidstone Waterworks Company.
No. 2. Chalk at Aylesford.	Spring at Boarley	,, ,,
No. 3. Lower Green Sand at W. Farleigh.	Spring at Ewell	,, ,,
No. 4. Lower Green Sand at Halling.	Boring at Halling	The Mid Kent Water Company.

Several times on previous occasions I have endeavoured to explain that their is no absolute test for the purity of a drinking water, each such water is a law unto itself as regards purity, and what stands for purity in one case by no means fixes the standard for purity in another; before an analyst can say with certainty that such and such a water is pure, he must have a critical knowledge of what the normal characteristics of that particular water are, and once possessed of this knowledge he is in a position to form a sound opinion based upon facts, otherwise his opinion is more or less guess work. It is in this sense that the labour expended has been an investment, it has furnished facts that help to establish fundamental bases upon which in future opinions can be founded without resort to guess work.

It is unnecessary I should trouble you with all the figures concerned in the analyses, they would furnish an imposing array which for the general reader I fear would have little meaning. Instead of this, I will relate in abstract the principle deviations from the normal, and the more important conclusions arrived at in relation to each of the several sources of supply. I will take them *seriatim*, beginning with

The Cossington.—Of this there have been made 52 analyses, one each week, with results that have shown the albuminoid ammonia frequently, and the free ammonia occasionally to have been too high; once (July 7th) together with excess of albuminoid ammonia there was a trace of nitrites; on February 24th, the albuminoid ammonia was in large excess being ·18 parts per million, the loss on ignition 3·2 grains per gallon, and the water was very turbid; on the 14th September, the oxygen absorbed was too high.

THE BOARLEY.—53 analyses, once a week. The nitrogen as nitrates have habitually been too high; on the 14th September, the oxygen absorbed was more than it should have been.

THE EWELL.—17 analyses, once a week, from the 1st September to the end of the year. The nitrogen as nitrates and the phosphoric acid have always been in excess, on September 14th, the oxygen absorbed in four hours was somewhat high.

THE MID KENT.—52 analyses, once a week. On May 26th there was excess of albuminoid ammonia; on the 14th September the oxygen absorbed in 4 hours was too high. On many occasions this water has been turbid from iron oxide in suspension.

THE CONDUIT was examined once on May 4th, its composition was then normal, except that the nitrates were more than twice as high as had been the average in past times.

MIXED WATER.—21 other analyses were made of samples of the mixed water as delivered in various parts of the town.

Speaking generally the quality of the Public waters has been good; of the two chalk waters

THE BOARLEY has shown itself to be decidedly the better—indeed it appears to be a most excellent water.

THE COSSINGTON is not so good, it is evidently subject to surface influence.

THE EWELL, except that the nitrates and phosphoric acid are habitually too high, seems to be a steady good Green-sand water—but reasons that I have often set forth, I object to the high nitrates and phosphoric acid.

The Mid Kent, which is also a Green-sand water, is very different from the Ewell, it is very much softer; in the place of 13 or 14 degrees of total hardness it has but 9, and after boiling, 4 in the place of 5; it evidently comes from the Folkestone beds, and not from the Hythe beds; this will also account for its ferruginous character, for almost the only blemish it has exhibited throughout the year was a frequent turbidity from iron oxide. On many occasions not a trace of nitrogen was to be found—either as ammonia, nitrite or nitrate.

As far as *quality* goes we may, speaking generally, fairly say that there has been no reason for complaint; but as respects *quantity*, partly owing to the cutting out of the Farleigh sources, but also in greater measure by reason of the extraordinary drought, the Company have had some difficulty in maintaining a full supply, so that at one time it became necessary to suspend the constant and resort to an intermittent service. The objection to this was not so much a matter of convenience, as the attendant risk of insuction of impure matter into the mains; however, no harm resulted, and I am satisfied the Company not only did their best under the trying circumstances in which they were placed, but were also as anxious as we ourselves to keep the service as constant as possible.

Of Water from Private Wells, 13 samples were submitted for analysis, and the results of the analyses were as shewn in the table on page 23.

These analyses show that, with the exception of No. 2, in one way or another all bear clear evidence of organic pollution to a more or less serious extent, and in the more serious cases they were on this account condemned straight away, as being absolutely unfit for use as drinking waters, or in the less serious, they were conditionally passed with a caution that they should not be used without previous boiling.

1898.	Number.	Description.	Total Solids.	Loss on Ignition.	Chlorine.	Nitrogen as Nitrates.	Ammonia.		Oxygen absd. in		Hardness.		Appearance in 2-foot tube.
							Free.	Alb.	¼ hr.	4 hrs.	Total.	Perm.	
Jan. 18	1	27-29, King Street..	77·7	4·6	5·2	3·50	·14	·12	·010	·026	33·4	20·6	cl. gr.
Apl. 4	2	Wall Tap, Tovil Hill	40·3	2·3	1·9	·62	·01	·01	·005	·017	23·2	8·3	cl. bl. gr.
May 10	3	13, Rocky Hill	39·2	2·5	2·6	1·55	·00	·02	·010	·023	19·8	9·4	cl. bl. gr.
June 10	4	Coombe Cottage, Tovil Road.	42·7	1·0	1·5	·93	·03	·06	·010	·016	24·3	13·0	gr., sl. turbid
,, 16	5	Newbury House, Tonbridge Road	48·5	5·8	3·1	1·75	·06	·29	·015	·033	24·2	10·3	p. gr., very turbid
July 7	6	38, Week Street.....	55·5	4·4	3·7	2·00	·01	·07	·007	·027	20·2	9·7	opq. bwn., turbid
Dec. 6	7	38, Week Street......	56·4	5·3	4·1	1·67	·05	·16	·020	·045	20·6	9·7	opq. bwn., vy. dty.
July 8	8	40, King Street......	97·6	6·5	8·0	3·18	·03	·07	·013	·034	34·9	22·3	cl. yellow green
Dec. 6	9	40, King Street......	98·7	5·4	7·8	2·59	·05	·00	·016	·033	33·6	21·7	cl. deep green
July 8	10	38, Upper Fant Rd.	41·9	2·9	2·7	1·40	·07	·03	·007	·014	23·2	9·8	p. gr., sl turbid
,, 11	11	Reservoir, Little Buckland.	40·4	2·5	2·4	1·21	·06	·08	·011	·027	24·7	10·2	cl. p. gr.
,, 20	12	Castle Hotel, Week Street.	76·8	5·3	5·8	2·41	·02	·10	·016	·031	24·8	14·8	cl. gr.
Dec. 8	13	"Old English Gentleman," Tovil...	65·1	4·5	6·8	1·32	1.06	·61	·425	·582	28·4	9·2	turb. bwn. green

Food and Drugs Act.—34 samples have been submitted for analysis under the terms of this Act; 6 were of Whiskey and 28 of Milk, with results as shown in the table on page 24.

These results are far from satisfactory, and compare very badly with the rate of adulteration for these two particular articles in the county of Kent generally, and it is to be observed that no samples whatever except Whiskey and Milk have been examined, so that no restriction has been put upon, and we have no information respecting, Bread, Butter, Lard, Coffee, or other sorts of Food, Drink, or Drugs, that are liable to adulteration.

Housing of the Working Classes Act.—A strong desire on the part of many, and strenuous efforts on the part of some, for several years past, have been directed upon questions involving a clearance of our most insanitary areas, and the erection of artizan dwellings and common lodging houses in their place.

ARTICLE.	RESULT OF ANALYSIS.
Whiskey	1·28 degrees below legal limit.
Whiskey	Pure.
Whiskey	,,
Whiskey	,,
Whiskey	,,
Whiskey	,,
Milk	,,
Milk	,,
Milk	,,
Milk	,,
Milk	,,
Milk	Skimmed to a small extent.
Milk	Pure.
Milk	,,
Milk	,,
Skim Milk	Small amount of added water.
Milk	Pure.
Milk	,,
Milk	Skimmed to a small extent.
Milk	Pure.
Milk	,,
Milk	,,
Milk	Small amount of added water.
Milk	Pure.
Milk	,,
Milk	,,
Milk	,,
Milk	,,
Milk	Small amount of added water.
Milk	Skimmed to a small extent.
Milk	Pure.
Milk	13·3 per cent. added water.
Milk	Pure.
Milk	,,
Total 34.	= 23·5 per cent. adulteration.

In 1893, with this object in view, I was instructed to prepare a report upon School Court, Bonny's Yard, and other similar places up and down High Street and King Street, subsequently deputations from the Board were sent to various towns for the purpose of gathering practical information that might be useful in the giving effect to this design. Reports upon these visits were presented, and there the matter for the present stands; but although it has not as yet advanced beyond the stage of discussion, the idea appears to have taken root, and I should hope it will be found that before long Maidstone will have cleared away some of the worst of these slums, and substituted modern artizan dwellings in their stead on suitable sites in the outskirts of the town.

DAIRIES, COWSHEDS, AND MILKSHOPS ORDER, 1885.—Frequent inspection of these places, with the purpose of maintaining and improving their sanitation, have been conducted as usual, and these inspections show that much requires to be done to bring these places into anything like a proper sanitary condition. A strong desire has been manifested by some members of the Sanitary Committee, to establish regulations that shall be effectual in the control of the milk producing trade in so far as the health of the community is concerned; it is keenly felt that the utmost importance attaches to the revelations concerning the risks attendant upon the consumption of diseased milk; if it appears there is hesitation in giving effect to these considerations, I believe it is simply caution arising chiefly from a conviction that these regulations must be drastic and probably costly, and, as I think naturally and properly, the Sanitary Committee are looking for some official guidance as to the best way of setting about this work, from head quarters.

BAKEHOUSES REGULATION ACT.—Bakehouses have been regularly inspected, and the provisions of the Act regulating the cubic capacity, cleansing and whitewashing, strictly enforced, with satisfactory effect.

FACTORY AND WORKSHOPS ACT.—The same remarks apply. We have not many places that come within this category, and the only structural requirement the inspections have resulted in, is the construction of means of escape in the case of fire on the premises of Couchman's Brush Factory on the banks of the Len.

Canal Boats Act.—Regular inspections have revealed no infectious disease, no overcrowding, or other breaches of the law. The only complaints for which cause has arisen, were due to lack of cleanliness aboard some of the coal barges; all requisitions to amend these causes of complaint were complied with.

CONCLUSION.

Of the Sanitary affairs of the Borough of Maidstone it may be said that 1898 was uneventful, and, except for the clinging trouble of Diphtheria, prosperous. The echoes of the Typhoid epidemic have died away. Giant progress in the turning of the *water carriage* system of drainage, from a farce into a reality, has been made. Additional hospital accommodation, for the isolation of infectious disease, has been voted. A spirit to face the difficulties of congested insanitary areas, by the removal of dilapidated buildings, the provision of artizan dwellings and municipal lodging houses has been manifested. And ready ears, and willing hearts are alive with the desire to take up with any reasonable proposal for the protection of the community against Tubercle. These are wholesome indications wherewith to bring my twentieth Annual Report to a close.

I have the honor to be,
Mr. Mayor and Gentlemen,
Your obedient servant,
MATTHEW A. ADAMS,
Medical Officer of Health.

Trinity House, Maidstone,
February, 1899.

BOROUGH OF MAIDSTONE, 1898.

TABLE I.

AREA. The are is 4,008 acres, divided into two divisions, East and West, by Week Street, Gabriel's Hill, and Stone Street; all to the West, including the Western sides of those Streets, constituting West Maidstone; the East Side, East Maidstone.

The Area of { East Maidstone .... 2,019 acres.
{ West ,, ... 1,989 ,,

ELEVATION. The population reside at a mean Elevation of 70 feet above the sea level, ranging from 20 to 120.

HOUSES. At the census of 1891 there were { West 2,693 / East 3,314 } =6007 inhabited houses, containing on an average { West 5·8 / East 5·0 } =Whole Borough 5·37 persons to a house

ANNUAL RATEABLE VALUE of Property in the Borough for the Poor Rate is £151,754.

DENSITY (1898) { East.................. 8·62 persons per acre.
{ West .... 8·39 ,, ,,

POPULATION, estimated to the middle of 1898 } Total 34,109 { East Maidstone............ 17,415.
{ East ,, ... 16,694·

					Legitimate.	Illegitimate.
BIRTHS.	Males.... 359 Females.. 355	Total 714	East Maidstone	 394	 379	 15
			West ,,	 320	 308	 12

Annual Rate of Births per 1,000....East Maidstone 22·62....West Maidstone 19·16....Whole Borough 20·93.

DEATHS. { Males.... 219 / Females.. 227 } Total .... 446 { East Maidstone .... 232 / West ,, ... 214 } Whole Borough..446.

Annual Rate of Mortality per 1,000 .. East Maidstone 13·32 .. West Maidstone 12·82 .. Whole Borough 13·07.

Excess of Births over Deaths, East Maidstone 162, West Maidstone 106, Whole Borough 268.

TABLE II.

Deaths at different ages, at rate per 10,000 per annum.

Period.	District.	Under 1 year.	1 to 5 years.	5 ,, 15 ,,	15 ,, 25 ,,	25 ,, 35 ,,	35 ,, 45 ,,	45 ,, 55 ,,	55 ,, 65 ,,	65 ,, 75 ,,	75 ,, 85 ,,	85 and above.	Total.
1st Quarter..	E	32·2	16·1	9·2	9·2	4·6	9·2	2·3	18·4	22·9	22·9	9·2	156·2
,, ..	W	35·9	19·1	4·8	7·2	7·2	14·1	9·6	4·8	14·1	16·7	16·7	150·9
2nd Quarter..	E	22·9	11·5	9·2	6·9	2·3	11·5	6·9	11·5	9·2	4·6	4·6	101·0
,, ..	W	16·7	9·6	7·2	2·4	7·2	7·2	12·0	9·6	19·1	9·6	2·4	103·0
3rd Quarter..	E	39·0	11·5	9·2	4·6	6·9	16·1	16·1	6·9	4·6	6·9	2·3	124·0
,, ..	W	38·2	21·5	12·0	..	..	9·6	..	4·8	14·1	4·8	2·4	107·8
4th Quarter..	E	32·2	16·1	2·3	4·6	2·3	16·1	11·5	22·9	20·7	11·5	11·5	151·5
,, ..	W	38·2	9·1	12·0	7·2	4·8	..	23·9	16·7	21·5	12·0	4·8	150·9
Whole Year..	E	31·6	13·8	7·4	6·3	4·0	13·2	9·2	14·9	14·3	11·5	6·9	133·2
,, ..	W	32·3	14·9	9·0	4·2	4·8	7·8	11·4	9·0	17·3	10·8	6·6	128·2

Average length of life in East and West Maidstone for each of the four quarters.

EAST MAIDSTONE.

	Deaths.		Years.
1st Quarter....	68	Giving an average age for each individual of	40·12
2nd ,, ...	44		31·85
3rd ,, ...	54		26·69
4th ,, ...	66		41·06
Whole Year	232		35·69

WEST MAIDSTONE.

	Deaths.		Years.
1st Quarter....	63	Giving an average age for each individual of	36·55
2nd ,, ...	43		39·74
3rd ,, ...	45		22·57
4th ,, ...	63		35·99
Whole Year	214		34 08

Average age attained at Death, during the whole year for the Borough at large = 34·92.

TABLE III.

Causes of Death, 1898, showing Rate per 1,000 per Annum for each District.

Period.	District.	Seven Zymotic Diseases.	Other Zymotics.	Phthisis.	Other Constitutional Diseases	Diseases of the Respiratory Organs.	Diseases of the Organs of Circulation.	Other Local Diseases.	Developmental Diseases.	Deaths by Violence.	Causes ill-defined or not specified.	Total from all Causes.
First Quarter	East Maidstone ..	1·14	·23	1·14	1·61	5·05	1·15	2·06	2·06	·23	·92	15·62
	West ,, ..	·96	·47	1·91	·72	5·03	·72	2·63	2·15	·47	..	15·09
Second ,, ...	East ,, ..	·46	·46	·92	1·42	1·61	·46	2·52	1·15	·92	·23	10·10
	West ,, ..	·96	..	·72	1·20	2·15	1·20	2·15	·72	·72	·47	10·30
Third ,, ...	East ,, ..	1·83	1·14	1·42	2·06	·23	·71	2·98	·92	·23	·92	12·40
	West ,, ..	2·39	1·68	·47	·72	·47	·72	2·63	·47	·24	·96	10·78
Fourth ,, ...	East ,, ..	·92	·71	·92	1·83	2·52	1·61	3·90	2·06	·23	·46	15·15
	West ,, ..	2·15	·96	·96	1·91	·96	2·63	3·83	·72	..	·96	15·09
Whole Year........	East ,, ..	1·09	·63	1·09	1·72	2·35	·97	2·87	1·55	·40	·63	13·32
	West ,, ..	1·62	·78	1·02	1·14	2·15	1·32	2·81	1·02	·36	·60	12·82

N.B.—Zymotic Diseases include Small Pox, Measles, Diphtheria, Whooping Cough, Fevers, &c. Constiutional Diseases include Gout, Cancer, Scrofula, &c. Developmental Diseases include Premature Birth, Teething, Old Age, Atrophy and Debility, &c.

TABLE IV.

RAINFALL IN MAIDSTONE, 1898, and excess or deficiency of Temperature.

FIRST QUARTER.				SECOND QUARTER.				THIRD QUARTER.				FOURTH QUARTER.			
Week.	Total Rain in inches.	No. of Days on which Rain fell.	Temperature.	Week.	Total Rain in inches.	No. of Days on which Rain fell.	Temperature.	Week.	Total Rain in inches.	No. of Days on which Rain fell.	Temperature.	Week.	Total Rain in inches.	No. of Days on which Rain fell.	Temperature.
1st	·21	3	+5·1	14th	·06	1	+3·3	27th	..	..	−2·0	40th	..	..	+3·1
2nd	..	..	+3·8	15th	·21	5	+3·1	28th	..	..	−0·8	41st	·23	2	−1·2
3rd	·03	1	+6·7	16th	..	:	−1·9	29th	·34	2	−0·1	42nd	1·42	6	+6·1
4th	..	..	+3·4	17th	·80	3	−0·3	30th	·25	1	−1·3	43rd	·60	2	+8·0
5th	·25	4	+4·2	18th	·68	6	+1·9	31st	..	..	+1·5	44th	·14	2	+3·3
6th	·28	2	+4·1	19th	1·04	6	−1·0	32nd	·95	2	−0·6	45th	·10	1	+5·4
7th	·24	3	+3·2	20th	·63	3	−4·6	33rd	·01	1	+7·7	46th	..	..	+5·6
8th	·26	3	−2·1	21st	·64	1	−0·9	34th	·10	1	+4·5	47th	1·39	5	−0·4
9th	·48	3	−1·5	22nd	·44	5	−5·4	35th	·07	1	+1·1	48th	·50	2	+3·2
10th	..	..	−3·2	23rd	·39	3	+2·0	36th	..	..	+11·5	49th	·73	4	+8·6
11th	..	..	+4·4	24th	·01	1	−3·8	37th	·01	1	+8·6	50th	..	..	+7·9
12th	·56	3	−4·4	25th	·25	2	−0·1	38th	·18	1	+1·4	51st	..	..	+1·2
13th	·41	2	−3·8	26th	·62	4	−2·0	39th	·14	1	−1·7	52nd	·67	4	+4·8
Total 2·72 inches.				Total 5·77 inches.				Total 2 05 inches.				Total 5·78 inches.			
				Total for Year, 16·32 inches.											

(A) TABLE OF DEATHS during the Year 1898, in the Urban Sanitary District of Maidstone, classified according to Diseases, Ages, and Localities.

	Mortality from all causes, at subjoined Ages.								Mortality from subjoined causes, distinguishing Deaths of Children under Five Years of Age.																					
													Fevers.																	
	At all ages.	Under 1 year.	1 and under 5	5 and under 15	15 and under 25	25 and under 65	65 and upwards.		Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing	Puerperal.	Cholera.	Erysipelas.	Measles.	Whooping Cough.	Diarrhœa and Dysentery.	Rheumatic Fever.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.		Injuries.	All other Diseases.	Total.
(a.)	(b.)	(c.)	(d.)	(e.)	(f.)	(g.)	(h.)	(i.)	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.
EAST MAIDSTONE ..																														
ACRES. Area 2019.—Males	116	32	13	5	8	37	21	Under 5			4								1		1	7			5			2	25	45
								5 upwds.			3			1										14	9	7			37	71
Females	116	23	11	8	3	35	36	Under 5			3										4				8			3	16	34
								5 upwds.			3											1		6	12	10		2	48	82
Including Deaths in West Kent Hospital as follows M.	8			1		5	2	M																					8	8
F.	11	1	1	2	1	5	1	F																	2	1		3	5	11
Total	232																													
WEST MAIDSTONE ..																														
ACRES. Area 1989.—Males	103	24	14	4	5	33	23	Under 5			3	1									3	6			7			1	17	38
								5 upwds.			3								2					8	10	10		5	27	65
Females	111	30	11	11	2	22	35	Under 5			4										4	3			6				24	41
								5 upwds.			8			1								1		9	4	12			35	70
Including deaths in Kent County Lunatic Asylum as follows.................... M.	1					1		M																1						1
F.	2					1	1	F																		1			1	2
Total	214																													
Totals	446	109	49	28	18	127	115	Under 5			14	1							1		12	16			26			6	82	158
								5 upwds.			17			2					2			2		37	35	39		7	147	288

The subjoined numbers have also to be taken into account in judging of the above records of mortality.

(a.)	(b.)	(c.)	(d.)	(e.)	(f.)	(g.)	(h.)	(i.)	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.
Deaths occurring outside the district among persons belonging thereto.								Under 5																						
								5 upwds.																						
Deaths occurring within the district among persons not belonging thereto.	214	2	1	3	13	132	63	Under 5																					1	1
								5 upwds.																53	29	39		9	83	213

(B) TABLE OF POPULATION, BIRTHS, AND OF NEW CASES OF INFECTIOUS SICKNESS coming to the knowledge of the Medical Officer of Health, during the year 1898, in the Urban Sanitary District of Maidstone; classified according to Diseases, Ages, and Localities.

	Population at all Ages.		Registered Births	Aged under 5 or over 5	New Cases of Sickness in each Locality, coming to the knowledge of the Medical Officer of Health.													Number of such Cases Removed from their Homes in the several Localities for Treatment in Isolation Hospital.												
									Fevers.													Fevers.								
	Census 1891.	Estimated to middle of 1898.			Smallpox.	Scarlatina.	Diphtheria	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.		
(a.)	(b.)	(c.)	(d.)	(e.)	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
EAST MAIDSTONE ..	16,548	17,415	394	Under 5		2	21			2					2				1	17										
				5 upwds.	1	4	39	1		12			1		15			1	1	26										
WEST MAIDSTONE ..	15,597	16,694	320	Under 5			49	2		4										28										
				5 upwds.		6	117			16					12				6	83										
Totals	32,145	34,109	714	Under 5		2	70	2		6					2				1	45										
				5 upwds.	1	10	156	1		28			1		27			1	7	109										

MAIDSTONE URBAN DISTRICT COUNCIL.

PUBLIC HEALTH DEPARTMENT.

To Parents, School Authorities, Teachers, and others.

As it has been frequently observed that the diminution of Infectious Diseases, such as Diphtheria, Scarlet Fever, and some other disorders, tends to diminish in accordance with the less intimate and close association of children at schools, public entertainments, with playmates in the streets, and at their homes, etc.; it is thought by this Authority that the following information may be useful in preventing the spreading of the above diseases:

(1) It is a universal principle that all children suffering from any dangerous Infectious disorder (*i.e.* of a nature dangerous to some of the persons attacked by it, however mild in other cases) should be excluded from School until there is reason to believe that they have ceased to be Infectious.

(2) Moreover, it is rarely possible to provide effectual separation of the sick from the healthy within the homes of children of the class attending Public Elementary Schools; it must therefore commonly be necessary that all children of an infected household should be excluded from School.

(*a*) Otherwise such children might attend school while suffering from the disease in an unrecognized though infectious stage.

(*b*) And also because the infection may attach itself to the clothes, etc., of a person living among infective surroundings.

The closure of Elementary Schools, although in some special cases a most valuable means of checking the spreading of certain infectious diseases, owing to the serious interference it causes to the educational work of the district, is, too serious a step to be frequently adopted, hence ONE of the objects of issuing the following recommendations.

The attention of School Authorities and Teachers should be drawn to the following considerations:—

(1) As Teachers themselves frequently obtain the earliest information of the occurrence of infectious disease among scholars ; it is desirable that they should communicate such information without delay to the Medical Officer of Health.

(2) The absence of children, especially several members of one family at one and the same time, should be reported to the same officer.

(3) That as there are good reasons for the belief that Diphtheria, and probably also some other diseases, may be conveyed by means of infected school slates, pencils and books, etc., used in common by school children ; also drinking water taken *directly* from a tap, by placing the mouth to the tap, by the passing of sweetmeats or musical instruments, or drinking vessels, from one child to another ; therefore, the moistening of slates with saliva or the other acts mentioned should never be permitted. Every school should be provided with a copper or suitable disinfecting apparatus, in order that at least the slates, pencils, and cloths and dusters may be regularly dealt with by immersion into boiling soda and water (one lb. of common washing soda in 10 gallons of water) for at least 10 minutes, after which they should be taken out and permitted to dry. Cloths (not sponges) moistened and "wrung out" with a suitable disinfectant solution should be *systematically* used for cleansing the desks and slates, etc.

(4) The exclusion from attendance, both at Day and Sunday Schools, of any child suffering from one or more of the several following symptoms :—Sudden onset of Sickness or Vomiting ; Shivering ; Sore Throat (*however slight*) or a white patch within the throat ; Difficulty in breathing ; Headache and languor ; Rash ; Discharge from the Nose stained with blood ; Extreme Pallor and Thickness of Voice, or the Discharge of Food through the Nose when attempting to swallow :—

Advice to Parents.

Should a child be attacked by any of the above symptoms :—

(*a*) Get your doctor to call and see the child, and meanwhile place the patient in a separate room.

(*b*) Recollect that it is most dangerous to kiss such a child or nurse it, and then to attend to household duties without changing your dress and disinfecting your hands. On no account must other children be allowed to play with a patient whilst sick or recovering from infectious disease. In particular, a patient having suffered from Diphtheria should be considered infectious and dangerous to others for AT LEAST three weeks after the white patch in the throat or elsewhere has disappeared, and then only at discretion of your doctor.

(*d*) On no account should *any* children suffering from an infectious house be permitted to attend either Day or Sunday Schools, Public Entertainments or School Treats, or be allowed to play with other children. If medically fit, it is well to keep such children (under supervision) out of doors on your own premises, in the garden, and to let them play strictly among themselves.

It is necessary to draw the attention of the public generally to the laws in relation to these matters, and among them more especially the following :—

I.

Notification to the Medical Officer of Health.

In any case :—

" Where an inmate of any house within this district is suffering from an infectious disease to which this section applies, viz.:—Small Pox, Cholera, Diphtheria, Membranous Croup, Erysipelas, the disease known as Scarlatina or Scarlet Fever, and the Fevers known by any of the following names—Typhus, Typhoid, Enteric, Relapsing, Continued or Puerperal Fevers, the following provisions have effect, that is to say :—

(*a*) The head of the family to which such inmate (in this section referred to as the patient) belongs, and in his default the nearest relatives of the patient present in the house or being in attendance on the patient, and in default of such relatives, every person in charge of or in attendance on such patient, and in default of any such person the master of the house, shall, as soon as he becomes aware that the patient is suffering from any infectious disease to which this section applies, send notice thereof to the Medical Officer of Health of the district.

(*b*) Every Medical Practitioner attending on or called in to visit the patient shall forthwith, on becoming aware that the patient is suffering from one of the above-mentioned diseases, also notify the same to the Medical Officer of Health."

II.

Exposure of Infected Persons or Things.

Any person who: —

(1) While suffering from any dangerous infectious disorder, wilfully exposes himself without proper precautions against spreading the said disorder, in any street, public

place, shop, inn, or public conveyance, or enters any public conveyance without previously notifying to the owner or conductor or driver thereof that he is so suffering ; or,

(2) Being in charge of any person so suffering, so exposes such sufferer ; or,

(3) Gives, lends, sells, transmits or exposes, without previous disinfection, any bedding, clothing, rags, or other things which have been exposed to infection from any such disorder :—

Shall be liable to a penalty.

By order of the Sanitary Committee.

Borough of Maidstone.

REPORT UPON BONNY'S YARD

AND SOME

ADJACENT PROPERTIES.

MATTHEW ALGERNON ADAMS,
F. R. C. S., F. C. S., F. I. C.,
Medical Officer of Health.

Maidstone:
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1899.

REPORT

UPON

BONNY'S YARD & SOME ADJACENT PROPERTIES.

To the Chairman of the Sanitary Committee.

Sir,

It is some time since (December, 1893*) that a report upon Bonny's Yard was first called for, and now I am again instructed to report upon the same locality, together with some adjacent properties, with a view to a consideration of the bearing thereupon of the "Housing of the Working Classes Act, 1890."

For this purpose I have made a thorough re-survey and reinspection of the parts concerned, and herewith submit in minute detail the results of the investigation, as an appendix to this report.

In the Plan annexed is shown that the locality under consideration comprises Upper Bonny's Yard, Grove Court, Ebenezer Place and Lower Bonny's Yard, of which the Boundaries are as follows:—

On the North—Shops and Workshops in King Street.
,, South—Water Lane and the River Len.
,, East—A Wall and and Footpath connecting King Street and Padsole Lane.
,, West—The Borough Police Station and the Gardens at the rear of "The Lock-up."

The area comprised therein, as a whole, amounts to 3,302 superficial yards, which for purposes of this report may be conveniently divided up into three sections:—

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* At the end of this present report is an abstract of the former report so far as relates to Bonny's Yard.

Section.		Area.
A.	Upper Bonny's Yard (No. 2 on the Plan) Grove Court (No. 1 on the Plan)	769 yds.*
B.	Lower Bonny's Yard (No. 3 & 4 on Plan)..	1759 yds.
C.	Ebenezer Place, and the remainder No. 5..	774 yds.
	TOTAL	3302 yds.

The reasons for this division are partly because of the several ownerships, and partly because of the character and structure of the houses thereon. There are in all 53 houses, containing 206 inhabitants, distributed as follows:—

No. on Plan.	Section.	Name of Place.	Owner.	Houses.	Population.
1	A.	Grove Court	The Cottage Improvement Comp'ny	5	16
2		and Upper Bonny's Yard..		12	36
3	B.	Lower Bonny's Yard .	Rayfild's Exors.	16	74
4		,, ,, ,,	Kite.	16	57
5	C.	Ebenezer Place	Cox.	4	23
		TOTAL	..	53	206

SECTION A.

GROVE COURT AND UPPER BONNY'S YARD consists of 17 houses with 52 inhabitants, owned by the Cottage Improvement Company. These form a group of buildings among the oldest in the town, they are reached by passage-ways under shops which face

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* If the three Shops in King Street, colored yellow in the Plan, be included, the total area would amount to 3495 yards, and the area of section A would be raised to 972 yards.

King Street, and are immediately attached to the rear of these shops. Upper Bonny's Yard facing Westward, Grove Court Eastward, 10 of the 17 houses are wholly, and two others partly back to back, the remaining five are not so. The passage leading to Grove Court ends in a *cul de sac;* that to Upper Bonny's Yard is a thoroughfare leading down to the Len.

The whole group is greatly crowded, and suffers from want of through ventilation.

In Grove Court they are three-roomed house, all are much out of repair. At No. 1 is a cracked chimney pot in a dangerous condition, and in many places the tiles are broken or missing.

There are nine closets about 12ft. in front of the houses, with very foul hopper pans, unprovided with any means for flushing.

The surface channelling and pavement are defective, and water finds its way readily into the basements of the dwellings. The wall and ceiling plaster of the interior is broken away in places, and the rooms are damp.

In one instance at No. 3, there are six inhabitants, of whom four children aged 13, 11, nine and two years, sleep in an attic affording only 127 cubic feet of air space per head.

Upper Bonny's Yard comprises 12 houses, each with three rooms on a steep slope descending towards the Len; facing westward, and approached by an entry passage under the first floor of two shops on the South side of King Street. In some cases they are much out of repair, for instance, at No. 10, is a broken chimney that is dangerous, a leaky roof, and the tenant complains of bad smell from a drain which is said to be beneath the floor of his living room.

The closets are on the opposite, western side of the court, they have foul hopper pans, and are unprovided with the means for flushing; the slates forming the roofs to these closets are in some cases broken.

For drinking purposes the water supply of this group, and indeed all the houses now under consideration, is derived from the Maidstone Water Works Company, and is supplied by means of hydrants.

The pavement is of tar.

The interiors are in most cases dirty, having damp walls, with, in many places, broken and defective plaster; of the windows only the bottom sashes admit of being opened. The rooms are small and average about 600 cubic feet. Nos. 1 and 7 are overcrowded, the occupants having 225 cubic feet of air space per head.

SECTION B.

Lower Bonny's Yard, consisting of two blocks of 16 houses to each block, parallel to one another and situated at right angles with, and at the foot of Upper Bonny's Yard; one block is owned by Rayfield's Exors, and the other by Kite.

Each house has four rooms, two on the ground floor and two above, and is back to back with its fellow house; so that the two back rooms of each house respectively can only obtain borrowed light and ventilation through the front rooms.

One half of these houses face due North, the other half South.

In many cases the roofs are leaky, and the rain water pipes and shooting defective; the end wall of No. 28 is badly bulged.

The paving is bad, and the ground which is full of springs coming from the hill above keeps the surface wet and causes surface water to stagnate in puddles around the dwellings.

The closets are detached and situated at the western end in a cooped up narrow passage, they are covered in by slate roofs devoid of shooting, so that the rain water is discharged at the foot of the west end walls of the two blocks. The closets are provided with unflushed long hopper pans, most of which are in a filthy condition, and some are cracked.

House refuse is provided for by open brick ash-pits.

The ridge tiles and slates of the northernmost block (Rayfield's Exors.) are broken at several places, and at No. 33, the rain comes in and falls upon the bed.

N.B—At at the time of the inspection (December 16th) some slight repairs were in progress, such was the case at Nos. 14 to 20, where external but not internal painting was being done.

The interior conditions of all these houses is that they are dark, dirty and damp. There are no fireplaces in the backrooms, the ceilings and walls are much out of repair. In some cases the floors are shaky, and the stairs and windows are broken.

In several instances there was found to be overcrowding, of which the following are examples:—

Rayfield's Block.

No. 13, in the first floor back, three boys were sleeping of the ages 11, 12 and 17 years respectively, with only 215 cubic feet per head.

No. 14, first floor front, two adults and two children, with 192 cubic feet per head.

No. 25, first floor back, five persons sleep, aged 7, 9, 12, 14 and 16, in a space equal to 130 cubic feet per head.

No. 28, ground floor back, three persons, 4, 13 and 14 years, with 249 cubic feet; and in

Kite's Block,

at No. 14, there were three children sleeping, aged 3, 6 and 7 years, each having 215 cubic feet of air space.

SECTION C.

Ebenezer Place.—This is a row of four cottages to the eastern side, and in a line with Rayfield's Block. They are much enclosed at the back or northern side by a high wall, but they have a free open frontage to the south, with large gardens sloping down to the river Len. And they are not "back to back," and consequently capable of efficient ventilation. In other respects, however, they are little, if any better than the other houses; for example, in the matter of repair, No. 40 has a leaky roof, the rain water pipe is broken, the wall is green from constant wet; then again, as respect the sanitary accomodation, the closets are wooden structures, very dark, out of repair, ceilings broken, pans very foul and unflushed.

With the exception of No. 39, which is clean, and in much better condition, the *interior* of these dwellings is dirty, damp, and out of repair.

This is, I think, all that need be said concerning the *topography* and *structural* condition of these places. *Socially*, as one might naturally expect, they are occupied by the lowest class of the people, day labourers and costers for the most part. Sometimes bargemen and waterside loafers; such people as belong to a distinct class, and who as a matter of choice gravitate to the most squalid slums they can find, they seldom have any ties of occupation that bind them to a given spot, if turned out from one place as a matter of course they emigrate to the next dirtiest and cheapest they can discover, with little regard to locality.

From what has already been said common sense assures us that these places must be unhealthy; still this inference falls short of actual proof, and it would be well if possible to establish the fact as actually proven, this however is by no means an easy task. It is true I am able to refer to the death rates, and the notifications of infectious diseases, but these records afford but slender help to the investigation. Health is not a mere matter of life and death, or even liability to infectious disease, it involves all of the conditions of life such as bear a part in our ill-or well-being during the length of our existence; of these things we have no records to turn to. Coughs, colds and sore throats, aches and pains, rheumatisms and neuralgias, any of these things although they may provoke, or produce, or lay the foundation for disabling or fatal disease, are not recorded. Nevertheless I will endeavour to extract such information as may be available from the records at my disposal, showing the effect these unfavourable surroundings have had upon the health of the inhabitants of this locality. I find that during the 10 years from the 1st July, 1888, to the last of June, 1898, there have been 52 deaths upon this area, constituting *a death rate = 25·2* per 1000 per annum, which is little short of double the rate for the town generally. The *mean age at death* I find to be 17 years, which is just about half of the average length of life in the town generally. The following table exhibits the age periods at which deaths have occurred.

Deaths at various Age Periods.

0—1.	1—5.	5—20.	20—40.	40 and upwards.	Total.
19	12	8	1	12	52

So that 39 out of 52 = 75 per cent. never reached manhood.

AS RESPECTS THE CAUSES OF DEATH.

In no less than 20 instances out of 52 = 38·5 per cent. death was directly due, or associated with disease of the Respiratory Organs; in too many other instances with Diarrhœal disease. The first of these facts is of startling significance, but by no means surprising; without doubt the damp, dirt and squalor are accountable for both of these things, and so far as these few figures go, they convict the locality of serious unhealthiness.

I might attempt, but the effort would be vain, to analyze the figures at my disposal further, in point of fact they are too few to afford material from which other than broad inferences can be safely drawn, or broad facts established.

CONCLUSION.

I claim that this investigation shows plainly enough that almost all the houses comprised within this area are of A MOST MISERABLE SORT, in respect of *situation, construction, condition and occupation,* but that they are not equally so.

Those comprised in SECTION A, from the nature of their position and construction, to my mind are incapable of remedy, they ought to be demolished.

Those in SECTION B could be made habitable, at least so far as ventilation is concerned, by making each two, corresponding back to back houses, into one, so establishing a thoroughfare on each floor from back to front, nothing less than this can make them reasonably healthful.

Those in SECTION C, if put into proper repair, might pass muster.

Yours obediently,

MATTHEW A. ADAMS,

Medical Officer of Health.

Abstract from Report, 1893.

BONNY'S YARD

Is a part of a congeries of similar dwellings opening out of King Street on its South side, and occupying the slope between it and the River Len; it consists of two rows of houses at right angles to one another. Twelve facing West on your left as you enter the yard, and eight others facing the North at the bottom of the yard; all are back to back houses, the former being in structural conjunction with similar cottages in Grove Court, and the latter connected in the same way with a row of dwellings behind, called Upper Watery Lane, at the East end of the yard in a *cul de sac* are four more houses called Ebenezer Place.

Confining myself to the two rows designated Bonny's Yard, the upper nine houses, Nos. 1 to 9 facing West, are three-roomed having ground floor, first floor and attic, all of equal floor space measuring 9ft. 9in. by 8ft. 9in., and on ground floor 6ft. 8in. high; the attics have no fireplace, the other rooms have; the entrance doors open into the lower rooms which are lighted by sash windows 3ft. 8in. by 2ft. 5in., the lower half of which only can be opened for ventilation.

For Sanitary convenience each cottage has its own closet on the West side of the Court which is about 10ft. wide, there is no water laid on to them, but they are fairly clean, for house refuse a large dustbin is used by all the people of the yard in common.

Nos. 10, 11 and 12 adjoin, they are in most respects similar but are two-roomed only, having no attic.

The eight houses at the bottom of the yard, numbered 13 to 20, are of different construction, each has nominally four rooms, but in truth two rooms only, a ground floor and first floor room, each being divided by a partition parallel to the frontage having a glazed opening which is the only source of light, that is to say a borrowed light from the front room, these front rooms measure

10ft. 2in. by 10ft. 2in., and are lighted by sash windows 3ft. 8in. by 2ft. 4in., the bottom sash only being praticable.

The back rooms measure 8ft. by 8ft., 2ft. 6in. of the ground area being occupied by the staircase, these dark cupboard-like recesses as before said, are illuminated by borrowed light alone through the glazed opening in the partition.

For Water supply the inhabitants have conduit hydrants.

For Sanitary convenience each cottage has a separate closet at one end of the yard without water being laid on, and the use of a large dustbin in common.

Facing the Row I am now alluding to is a high wall being the boundary of the premises of Elmore the builder and Usherwood the coachmaker, at the foot of this wall are several springy places which keep this part of the yard always damp. The yard is tar paved, and compared with its condition some 10 or 12 year back, is now in very decent order.

So far as being weather proof, I cannot say that any of these cottages are much amiss, but again I say of these as of those in School Court, they are all of a most miserable order of dwellings.

Unlike those in School Court, they shelter more people numbering altogether for the 20 house some 88 individuals, that is on an average 4·4 to a house, though in three instances there were 8, and in a fourth 7 to a single cottage.

The occupation of the inhabitants is very various, and includes besides general labourers, hawkers, mill hands, gas stokers, sale porters, rag sorters, &c.

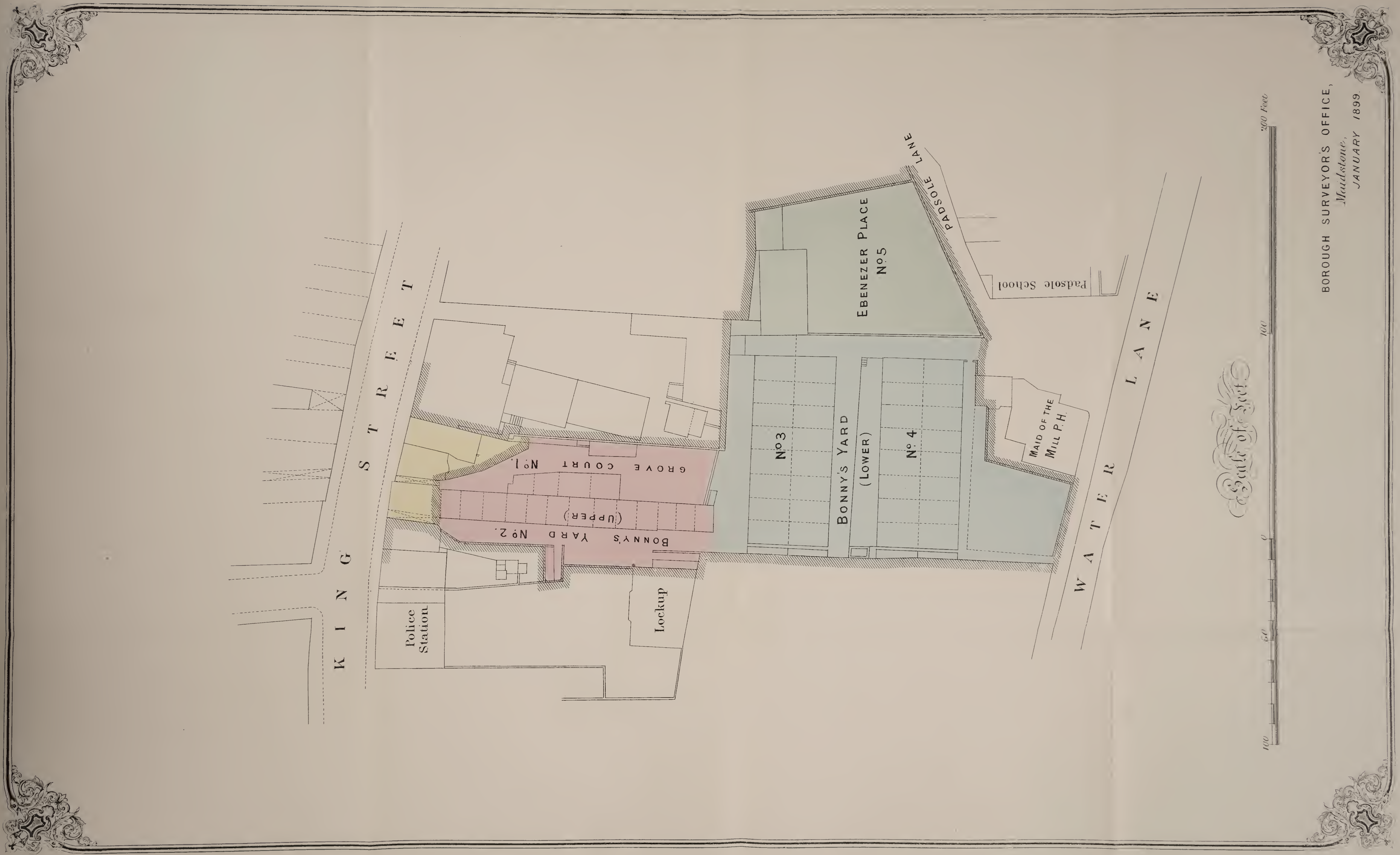
Viewed as a whole, these dwellings in these two localities are relics of the past, such as nowadays would not be allowed to be constructed; from a moral and social point of view, without hesitation they must be condemned as not fit for human habitation, but from a strictly legal point of view I am afraid it would be difficult to bring these dwellings within the restraint of the Law as far as a closing order is concerned, in such a case it is incumbent upon me to certify that such "dwelling houses "appear to me to be in a state so dangerous or injurious to "health as to be unfit for human habitation."—(Housing of the Working Classes Act, 1890, Sec. 30.) These are strong words and would be subject to strict interpretation in a Court of Law, and to the best of my judgment would frustrate any attempt at prohibition by means of a closing order.

But fortunately our powers do not end there, by Sec. 38 of the same Act, "if I as Medical Officer of Health find that any "building within my district, although not in itself unfit for "human habitation, is so situate that by reason of its proximity "to or contact with any other buildings to cause one of the "following effects, that is to say:—(*a*) It stops ventilation, or "otherwise makes or conduces to make such other buildings to "be in a condition unfit for human habitation or dangerous or "injurious to health; or (*b*) it prevents proper measures from "being carried into effect for remedying any nuisance injurious "to health or other evils complained of in respect of such other "building; in any such case, I, the Medical Officer of Health shall "represent to the Local Authority the particulars relating to such "first mentioned building (in this Act referred to as "an "obstructive building") stating that in my opinion it is ex-"pedient that the obstructive building should be pulled down."

Now in the foregoing report I think sufficient has been said, and particulars given to comply with the terms of this clause, and I do now hereby state as my opinion that it is expedient that these obstructive buildings should be pulled down.

Yours obediently,
MATTHEW A. ADAMS,
Medical Officer of Health.

December, 1893.



BOROUGH SURVEYOR'S OFFICE,
Maidstone,
JANUARY 1899.